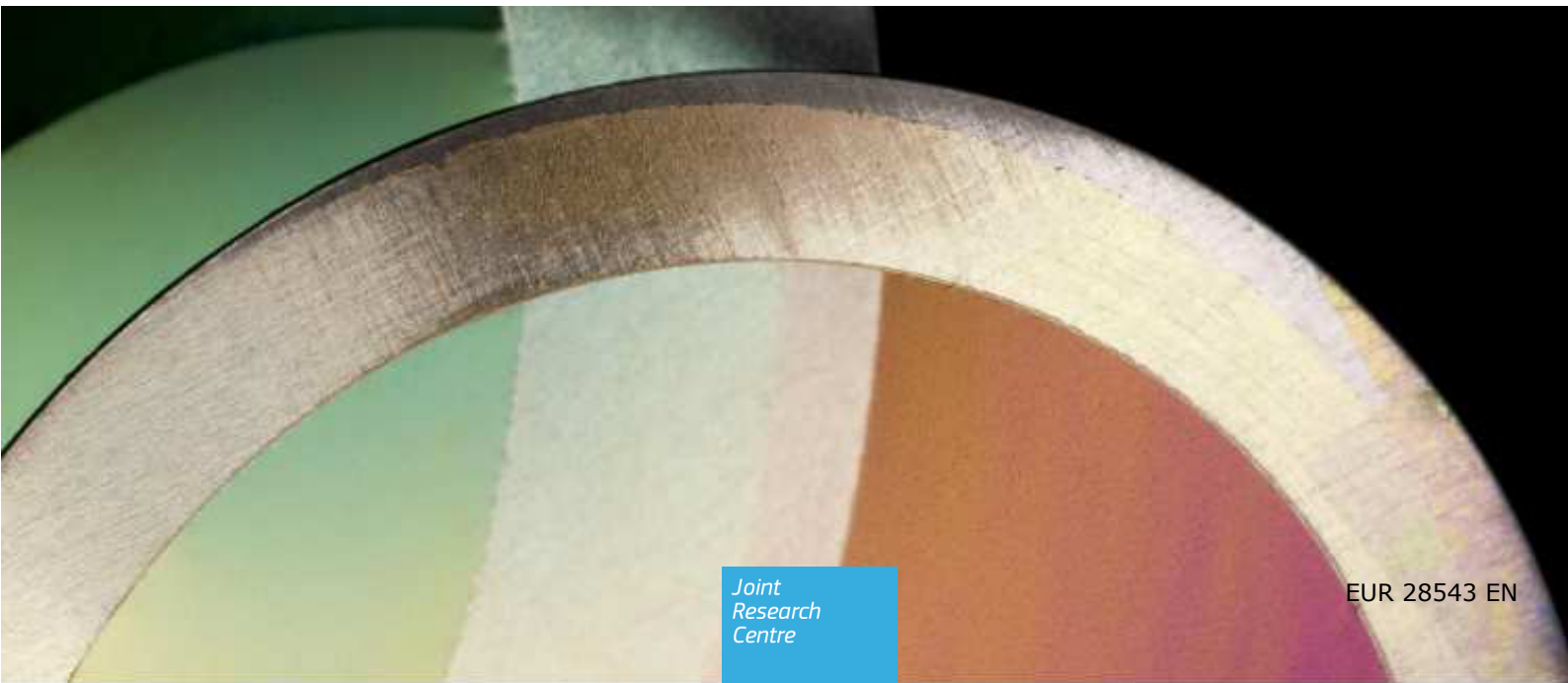
European Commission

JRC TECHNICAL REPORTS

Generating the CFP indicators sampling frame for FAO area 27 (North-east Atlantic)

Finlay Scott, Maurizio Gibin, Ernesto Jardim



Joint Research Centre

EUR 28543 EN

Contact information
Name: Finlay Scott
Address: Joint Research Centre, Via Enrico Fermi 2749, TP 051, 21027 Ispra (VA), Italy
Email: finlay.scott@jrc.ec.europa.eu
Tel.: +39 0332 9610

JRC Science Hub
https://ec.europa.eu/jrc

JRC106114

EUR 28543 EN

PDF ISBN 978-92-79-67448-8 ISSN 1831-9424 doi:10.2760/689063

Luxembourg: Publications Office of the European Union, 2017

How to cite this report: Finlay Scott, Maurizio Gibin, Ernesto Jardim, *Generating the CFP indicators sampling frame for FAO area 27 (North-east Atlantic)*, EUR 28543 EN, Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-67448-8, doi:10.2760/689063, JRC106114

Abstract
Generating the CFP indicators sampling frame for FAO area 27 (Northeast Atlantic)
This document describes the generation of the CFP indicators sampling frame for FAO area 27 (Northeast Atlantic).

Contents

Abstract

For the analysis of the CFP indicators it is necessary to generate the sampling frame. The sampling frame is the collection of species in EU Fisheries Managment Zones (FMZ) for which the CFP is at least partially responsible for their management. This document describes the generation of the sampling frame. Embedded R code is executed to generate the sampling frame.

1. Introduction

For the analysis of the CFP indicators it is necessary to generate the sampling frame. The sampling frame is the collection of species in EU Fisheries Managment Zones (FMZ) for which the CFP is at least partially responsible for their management.

All of the species and FMZ areas can be found in the TAC definitions table (from the DGMARE Quota database). A TAC is identified by a combination of the species code and FMZ area code. For example, *COD/07D* is cod in the FMZ *07D* (the Eastern part of the English Channel). Note that these TACs are not biological stocks.

Some of these TACs are outside of the area of interest, are special conditions or are not managed through the CFP. These TACs need to be removed to create the sampling frame

The general approach is to identify the TACs in ICES areas III, IV, VI, VII. VIII and IX. From this list we then remove:

- The TACs that are in FMZ *04-N.* as these are on the Norwegian coast;
- The TACs that are special conditions;
- The TACs that are outside the groups of interest;
- Other special case TACs.

The remaining TACs are the sampling frame.

2. FMZ and ICES areas

The first step is to identify the TACs that are in the areas of interest. A data file has been made that contains species, FMZs, FAO areas and the ICES areas that make up the FMZ areas (Gibin, 2017). In this study we are only interested in ICES areas III, IV, VI, VII, VIII and IX. We also want to exclude the FMZ *04-N.* as this on the Norwegian coast.

First we load and tidy the FMZ/ICES data:

```
fmz <- read.csv("../data/TACSFMZFAO.csv", stringsAsFactors=FALSE)
# Make the area columns upper case and remove white space
fmzcols <- c("F_CODE", "F_SUBAREA", "F_DIVISION", "F_SUBDIVIS", "F_SUBUNIT",
    "STOCK_ID")
for (i in fmzcols){
    fmz[,i] <- toupper(gsub("\\s", "", fmz[,i]))
}
# Split the stock id into species and fmz
# See note below about the spp column
stksplit <- strsplit(fmz$STOCK_ID, "/")
fmz$spp <- unlist(lapply(stksplit, function(x) return(x[1])))
fmz$fmz <- unlist(lapply(stksplit, function(x) return(paste(x[-1], collapse="/"))))
# There are NAs in STOCK_ID - remove these rows
fmz <- fmz[!(is.na(fmz$STOCK_ID)),]
# Trim fmz to make it manageable
fmz <- fmz[,c("FMZ_ID","F_LEVEL","STOCK_ID","F_CODE","F_AREA","F_SUBAREA",
    "F_DIVISION","F_SUBDIVIS","F_SUBUNIT", "ICES_area", "spp", "fmz")]
# Rename F_CODE column so that it matches the ICES rectangle data
colnames(fmz)[colnames(fmz) == "F_CODE"] <- "area"
# Change colnames to lower case because it looks like we are shouting
colnames(fmz) <- tolower(colnames(fmz))
# Correct column name
colnames(fmz)[colnames(fmz) == "stock_id"] <- "TAC_id"
# Make a full copy for backup
fmzfull <- fmz
```

An FMZ can be made up of several ICES areas. For example the TAC *COD/2A3AX4* is made up of:

```
subset(fmz, TAC_id=="COD/2A3AX4")[,c("TAC_id","area")]

##          TAC_id     area
## 1140 COD/2A3AX4   27.4.B
## 1142 COD/2A3AX4   27.4.A
## 1144 COD/2A3AX4 27.2.A.2
## 1146 COD/2A3AX4   27.3.A
## 1148 COD/2A3AX4   27.4.C
```

The column that contains the ICES areas of each FMZ is *f_subarea*.

```
sort(unique(fmz$f_subarea))

##  [1] "27.1"  "27.12" "27.14" "27.2"  "27.3"  "27.4"  "27.5"  "27.6"
##  [9] "27.7"  "27.8"  "27.9"
```

We identify the TAC/FMZs that are in the desired ICES areas:

```
# III, IV, VI, VII, VIII and IX
sframe_TAC <- unique(subset(fmz, f_subarea %in% c("27.3", "27.4", "27.6", "27.7",
    "27.8", "27.9", "27.10"))$TAC_id)
```

We also identify the TACs that are on the Norwegian coast (FMZ = *04-N.*). These will be removed later.

```
norwg <- unique(fmz[grepl("04-N.", fmz$TAC_id),"TAC_id"])
```

3. Special conditions and TACs outside of the groups of interest

The next step is to identify the TACs that are special conditions and outside of the groups of interest. This is done using the TAC definitions table and special conditions table from the DGMARE Quota database.

First we load and tidy the TAC definitions and special conditions tables.

```
library(plyr)
speccond <- read.csv("../data/SpecialCondstockdefinitions2016102716571.csv")
stockdef <- read.csv("../data/StockDefstockdefinitions2016102716571.csv")
```

```
# Stock definitions table
sdcols <- c("Active.Year", "Definition.Year", "Species.Code", "Species.Name",
    "Area.Code", "Stock.Group.Code", "Stock.Group.Description",
    "Area.Description", "TAC.Type.Code", "TAC.Type.Description", "SC.Indicator")
# Also available - Under.safe.biological.limit, multi.annual.plan.stock
stockdef <- stockdef[,sdcols]
for (i in c("Species.Code", "Area.Code","SC.Indicator")){
    stockdef[,i] <- toupper(gsub("\\s", "", stockdef[,i]))
}
stockdef$TAC_id <- paste(stockdef$Species.Code, "/", stockdef$Area.Code, sep="")
# Number of unique species and FMZ combinations
length(unique(stockdef$TAC_id))

## [1] 677
```

```
# Special conditions table
sccols <- c("Definition.Year", "Species.Code", "Area.Code", "Main.Stock.Species.Code",
    "Main.Stock.Area.Code", "SC.Type.Code", "Area.Description")
speccond <- speccond[,sccols]
for (i in c("Species.Code", "Area.Code", "Main.Stock.Species.Code",
    "Main.Stock.Area.Code")){
        speccond[,i] <- toupper(gsub("\\s", "", speccond[,i]))
}
speccond$TAC_id <- paste(speccond$Species.Code, "/", speccond$Area.Code, sep="")
# Each special condition stock has also a 'parent' stock.
speccond$main_TAC_id <- paste(speccond$Main.Stock.Species.Code, "/",
    speccond$Main.Stock.Area.Code, sep="")
```

3.1 Special conditions

Special conditions are not straightforward. There are four types of special conditions: sub-species, sub-area, extra limitation and special condition. Each special condition TAC has at least one parent TAC (the TAC it is a special condition of). Special condition TACs can have multiple parents and also grandparents (i.e. the parent of a special condition is itself a special condition). TACs can also be virtual parents of special conditions, which are used to monitor a certain quantity (by aggregating several child TACs). Additionally, TACs can be regulation footnotes that are not strictly considered to be special conditions.

We need to remove the special condition TACs from the FMZ data. This means we need to identify all of the special conditions, including footnotes and virtual parents.

Most special conditions can be identified through the *SC.Indicator* column in the TAC definitions data. Additionally, some special conditions have a * in the area code. However, not all special conditions are noted as such in the *SC.Indicator* column and not all special condition stocks have a * in the area code. We therefore identify special conditions as TACs that have a *Y* in the *SC.Indicator* column and / or have a * in their area code (often they will have both).

Here we compile a list of the special condition TACs that need to be removed.

```
# 1. Special conditions (SC.Indicator == Y)
scs <- subset(stockdef, SC.Indicator=="Y")[,"TAC_id"]
# 2. Extra SCs that do not feature in SC column but have * in the area code
extrascs <- stockdef[grepl("\\*", stockdef$Area.Code),"TAC_id"]
# There is duplication there so remove duplicates
scs <- unique(c(scs, extrascs))
length(scs)

## [1] 273
```

3.2 Dropping groups

The TACs in the definitions file have a wide range of origins.

```
unique(stockdef$Stock.Group.Description)

##  [1] TAC-Highly Migratory Fish
##  [2] REG-NEAFC Convention Area
##  [3] TAC-SEAFO Convention Area
##  [4] TAC-Deep-sea Species
##  [5] TAC-North-western Waters
##  [6] REG-NAFO Regulatory Area
##  [7] TAC-CCAMLR Convention Area
##  [8] TAC-NEAFC Convention Area
##  [9] TAC-NAFO Regulatory Area
## [10] FPAs agreements
## [11] TAC-SPRFMO Convention Area
## [12] Chartering in the NAFO Regulatory Area
## [13] TAC-Baltic Sea Area
## [14] TAC-Southern Bluefin Tuna - All areas
## [15] TAC-Black Sea Area
## [16] TAC-WCPFC Convention Area
## 16 Levels: Chartering in the NAFO Regulatory Area ... TAC-WCPFC Convention Area
```

We are only interested in TACs that appear in *TAC-Deep-sea Species*, *TAC-North-western Waters*, *TAC-Baltic Sea Area* and *TAC-NEAFC Convention Area*.

We compile a list of TACs that are in the groups that we want to exclude:

```
# We only want
groups <- c("TAC-Deep-sea Species", "TAC-North-western Waters", "TAC-Baltic Sea Area",
    "TAC-NEAFC Convention Area")
# Stocks not in these groups
nogrp <- stockdef[!(stockdef$Stock.Group.Description %in% groups),"TAC_id"]
```

Note that highly migratory stocks are not included.

4. Creating the sampling frame

To create the sampling frame we take the list of TACs that are in the ICES areas III, IV, VI, VII, VIII and IX and remove:

- Special conditions;
- TACs outside of the groups of interest;
- TACs on the Norwegian coast;
- Salmon stocks (which are special cases)

We identify salmon stocks:

```
sal <- unique(subset(fmz, spp=="SAL")$TAC_id)
```

We remove the unwanted TACs to create the sampling frame:

```
sframe_TAC <- sframe_TAC[!(sframe_TAC %in% unique(c(scs, norwg, nogrp, sal)))]
length(sframe_TAC)

## [1] 156
```

This process means we now have a sampling frame. The data set of the sampling frame also contains the corresponding ICES areas that make up each FMZ area.

5. The sampling frame

```
# Remove ICES areas and duplicates
sframe <- unique(subset(fmz, TAC_id %in% sframe_TAC)[,c("TAC_id", "spp", "fmz")])
# Bring in Area.Description are other info
sframe <- merge(sframe, stockdef[,c("TAC_id","Species.Name", "Stock.Group.Description",
    "Area.Description")], all.x=TRUE)
sframe <- sframe[,c("TAC_id", "Species.Name", "Stock.Group.Description",
    "Area.Description")]
colnames(sframe) <- c("TAC", "Species", "Group", "Area")
```

	TAC	Species	Group	Area
1	ALF/3X14-	Alfonsinos nei	TAC-Deep-sea Species	Union and international waters of III, IV, V, VI, VII, VIII, IX, X, XII and XIV
2	ANE/08.	European anchovy	TAC-North-western Waters	VIII
3	ANE/9/3411	European anchovy	TAC-North-western Waters	IX and X; Union waters of CECAF 34.1.1
4	ANF/07.	Anglerfishes nei	TAC-North-western Waters	VII
5	ANF/2AC4-C	Anglerfishes nei	TAC-North-western Waters	Union waters of IIa and IV
6	ANF/56-14	Anglerfishes nei	TAC-North-western Waters	VI; Union and international waters of Vb; international waters of XII and XIV
7	ANF/8ABDE.	Anglerfishes nei	TAC-North-western Waters	VIIIa, VIIIb, VIIId and VIIIe
8	ANF/8C3411	Anglerfishes nei	TAC-North-western Waters	VIIIc, IX and X; Union waters of CECAF 34.1.1
9	ARU/34-C	Greater argentine	TAC-North-western Waters	Union waters of III and IV
10	ARU/567.	Greater argentine	TAC-North-western Waters	Union and international waters of V, VI and VII
11	BLI/03-	Blue ling	TAC-North-western Waters	Union and international waters of III
12	BLI/24-	Blue ling	TAC-North-western Waters	Union and international waters of II and IV
13	BLI/5B67-	Blue ling	TAC-North-western Waters	Union and international waters of Vb, VI and VII
14	BOR/678-	Boarfishes nei	TAC-North-western Waters	Union and international waters of VI, VII and VIII
15	BSF/1234-	Black scabbardfish	TAC-Deep-sea Species	Union and international waters of I, II, III and IV
16	BSF/56712-	Black scabbardfish	TAC-Deep-sea Species	Union and international waters of V, VI, VII and XII
17	BSF/8910-	Black scabbardfish	TAC-Deep-sea Species	Union and international waters of VIII, IX and X

18	COD/03AN.	Atlantic cod	TAC-North-western Waters	Skagerrak
19	COD/03AS.	Atlantic cod	TAC-North-western Waters	Kattegat
20	COD/07A.	Atlantic cod	TAC-North-western Waters	VIIa
21	COD/07D.	Atlantic cod	TAC-North-western Waters	VIId
22	COD/2A3AX4	Atlantic cod	TAC-North-western Waters	IV; Union waters of IIa; that part of IIIa not covered by the Skagerrak and Kattegat
23	COD/3BC+24	Atlantic cod	TAC-Baltic Sea Area	Subdivisions 22-24
24	COD/3DX32.	Atlantic cod	TAC-Baltic Sea Area	Union waters of Subdivisions 25-32
25	COD/5BE6A	Atlantic cod	TAC-North-western Waters	VIa; Union and international waters of Vb east of 12Âř 00’ W
26	COD/5W6-14	Atlantic cod	TAC-North-western Waters	VIb; Union and international waters of Vb west of 12Âř 00’ W and of XII and XIV
27	COD/7XAD34	Atlantic cod	TAC-North-western Waters	VIIb, VIIc, VIIe-k, VIII, IX and X; Union waters of CECAF 34.1.1
28	D/F/2AC4-C	Common dab/Flounder	TAC-North-western Waters	Union waters of IIa and IV
29	DGS/03A-C.	Picked dogfish	TAC-North-western Waters	Union waters of IIIa
30	DGS/15X14	Picked dogfish	TAC-North-western Waters	Union and international waters of I, V, VI, VII, VIII, XII and XIV
31	DGS/2AC4-C	Picked dogfish	TAC-North-western Waters	Union waters of IIa and IV
32	DWS/56789-	Deep-water sharks nei	TAC-Deep-sea Species	Union and international waters of V, VI, VII, VIII and IX; Union waters of CECAF 34.1.1, 34.1.2 and 34.2
33	GFB/1234-	Greater forkbeard	TAC-Deep-sea Species	Union and international waters of I, II, III and IV
34	GFB/567-	Greater forkbeard	TAC-Deep-sea Species	Union and international waters of V, VI and VII
35	GFB/89-	Greater forkbeard	TAC-Deep-sea Species	Union and international waters of VIII and IX
36	GHL/2A-C46	Greenland halibut	TAC-North-western Waters	Union waters of IIa and IV; Union and international waters of Vb and VI
37	HAD/07A.	Haddock	TAC-North-western Waters	VIIa
38	HAD/2AC4.	Haddock	TAC-North-western Waters	IV; Union waters of IIa
39	HAD/3A/BCD	Haddock	TAC-North-western Waters	IIIa; Union waters of Subdivisions 22-32

40	HAD/5BC6A.	Haddock	TAC-North-western Waters	Union and international waters of Vb and VIa
41	HAD/6B1214	Haddock	TAC-North-western Waters	Union and international waters of VIb, XII and XIV
42	HAD/7X7A34	Haddock	TAC-North-western Waters	VIIb-k, VIII, IX and X; Union waters of CECAF 34.1.1
43	HER/03A.	Atlantic herring	TAC-North-western Waters	IIIa
44	HER/03A-BC	Atlantic herring	TAC-North-western Waters	IIIa
45	HER/03D.RG	Atlantic herring	TAC-Baltic Sea Area	Subdivision 28.1
46	HER/06ACL.	Atlantic herring	TAC-North-western Waters	VI Clyde (Clyde stock: reference is to the herring stock in the maritime area situated to the north-east of a line drawn between the Mull of Kintyre (55Âř19’N, 05Âř48’W), a point at position (55Âř04’N, 05Âř23’W) and Corsewall Point (55Âř01’N, 05Âř10’W))
47	HER/07A/MM	Atlantic herring	TAC-North-western Waters	VIIa (This zone is reduced by the area bounded: âĂŤ to the north by latitude 52Âř 30’ N, âĂŤ to the south by latitude 52Âř 00’ N, âĂŤ to the west by the coast of Ireland, âĂŤ to the east by the coast of the United Kingdom.)
48	HER/2A47DX	Atlantic herring	TAC-North-western Waters	IV, VIId and Union waters of IIa
49	HER/30/31.	Atlantic herring	TAC-Baltic Sea Area	Subdivisions 30-31
50	HER/3BC+24	Atlantic herring	TAC-Baltic Sea Area	Subdivisions 22-24
51	HER/3D-R30	Atlantic herring	TAC-Baltic Sea Area	Union waters of Subdivisions 25-27, 28.2, 29 and 32
52	HER/4AB.	Atlantic herring	TAC-North-western Waters	Union and Norwegian waters of IV north of 53Âř 30’ N
53	HER/4CXB7D	Atlantic herring	TAC-North-western Waters	IVc, VIId (Except Blackwater stock in the maritime region of the Thames estuary delimited by a rhumb line running due south from Landguard Point (51Âř 56’ N, 1Âř 19.1’ E) to latitude 51Âř 33’ N and hence due west to a point on the coast of the UK)
54	HER/5B6ANB	Atlantic herring	TAC-North-western Waters	Union and international waters of Vb, VIb and VIaN (Reference is to the herring stock in the part of ICES zone VIa east of 7ÂřW and north of 55ÂřN, or west of 7ÂřW and north of 56ÂřN, excluding the Clyde.)
55	HER/6AS7BC	Atlantic herring	TAC-North-western Waters	VIaS (Reference is to the herring stock in VIa south of 56Âř 00’ N and west of 07Âř 00’ W.), VIIb, VIIc

56	HER/7EF.	Atlantic herring	TAC-North-western Waters	VIIe and VIIf
57	HER/7G-K.	Atlantic herring	TAC-North-western Waters	VIIg, VIIh, VIIj and VIIk (This zone is increased by the area bounded: âĂŤ to the north by latitude 52Âř 30’ N, âĂŤ to the south by latitude 52Âř 00’ N, âĂŤ to the west by the coast of Ireland, âĂŤ to the east by the coast of the United Kingdom.)
58	HKE/2AC4-C	European hake	TAC-North-western Waters	Union waters of IIa and IV
59	HKE/3A/BCD	European hake	TAC-North-western Waters	IIIa; Union waters of Subdivisions 22-32
60	HKE/571214	European hake	TAC-North-western Waters	VI and VII; Union and international waters of Vb; international waters of XII and XIV
61	HKE/8ABDE.	European hake	TAC-North-western Waters	VIIIa, VIIIb, VIIId and VIIIe
62	HKE/8C3411	European hake	TAC-North-western Waters	VIIIc, IX and X; Union waters of CECAF 34.1.1
63	JAX/08C.	Jack and horse mackerels nei	TAC-North-western Waters	VIIIc
64	JAX/09.	Jack and horse mackerels nei	TAC-North-western Waters	IX
65	JAX/2A-14	Jack and horse mackerels nei	TAC-North-western Waters	Union waters of IIa, IVa; VI, VIIa-c, VIIe-k, VIIIa, VIIIb, VIIId and VIIIe; Union and international waters of Vb; international waters of XII and XIV
66	JAX/4BC7D	Jack and horse mackerels nei	TAC-North-western Waters	Union waters of IVb, IVc and VIId
67	LEZ/07.	Megrims nei	TAC-North-western Waters	VII
68	LEZ/2AC4-C	Megrims nei	TAC-North-western Waters	Union waters of IIa and IV
69	LEZ/56-14	Megrims nei	TAC-North-western Waters	VI; Union and international waters of Vb; international waters of XII and XIV
70	LEZ/8ABDE.	Megrims nei	TAC-North-western Waters	VIIIa, VIIIb, VIIId and VIIIe
71	LEZ/8C3411	Megrims nei	TAC-North-western Waters	VIIIc, IX and X; Union waters of CECAF 34.1.1
72	LIN/04-C.	Ling	TAC-North-western Waters	Union waters of IV
73	LIN/3A/BCD	Ling	TAC-North-western Waters	IIIa; Union waters of Subdivisions 22-32

74	LIN/6X14.	Ling	TAC-North-western Waters	Union and international waters of VI, VII, VIII, IX, X, XII and XIV
75	L/W/2AC4-C	Lemon sole/Witch flounder	TAC-North-western Waters	Union waters of IIa and IV
76	MAC/2A34.	Atlantic mackerel	TAC-North-western Waters	IIIa and IV; Union waters of IIa, IIIb, IIIc and Subdivisions 22-32
77	MAC/2A4A-N	Atlantic mackerel	TAC-North-western Waters	Norwegian waters of IIa and IVa
78	MAC/2CX14-	Atlantic mackerel	TAC-North-western Waters	VI, VII, VIIIa, VIIIb, VIIId and VIIIe; Union and international waters of Vb; international waters of IIa, XII and XIV
79	MAC/8C3411	Atlantic mackerel	TAC-North-western Waters	VIIIc, IX and X; Union waters of CECAF 34.1.1
80	NEP/07.	Norway lobster	TAC-North-western Waters	VII
81	NEP/08C.	Norway lobster	TAC-North-western Waters	VIIIc
82	NEP/2AC4-C	Norway lobster	TAC-North-western Waters	Union waters of IIa and IV
83	NEP/3A/BCD	Norway lobster	TAC-North-western Waters	IIIa; Union waters of Subdivisions 22-32
84	NEP/5BC6.	Norway lobster	TAC-North-western Waters	VI; Union and international waters of Vb
85	NEP/8ABDE.	Norway lobster	TAC-North-western Waters	VIIIa, VIIIb, VIIId and VIIIe
86	NEP/9/3411	Norway lobster	TAC-North-western Waters	IX and X; Union waters of CECAF 34.1.1
87	NOP/2A3A4.	Norway pout	TAC-North-western Waters	Union waters of IIa, IIIa and IV (Excluding waters within six nautical miles of UK baselines at Shetland, Fair Isle and Foula.)
88	ORY/06-	Orange roughy	TAC-Deep-sea Species	Union and international waters of VI
89	ORY/07-	Orange roughy	TAC-Deep-sea Species	Union and international waters of VII
90	ORY/1CX14	Orange roughy	TAC-Deep-sea Species	Union and international waters of I, II, III, IV, V, VIII, IX, X, XII and XIV
91	OTH/2A46AN	Other species	TAC-North-western Waters	Union waters of IIa, IV and VIa north of 56Âř 30’ N
92	OTH/5B67-C	Other species	TAC-North-western Waters	Union waters of Vb, VI and VII
93	PLE/03AN.	European plaice	TAC-North-western Waters	Skagerrak
94	PLE/03AS.	European plaice	TAC-North-western Waters	Kattegat

95	PLE/07A.	European plaice	TAC-North-western Waters	VIIa
96	PLE/2A3AX4	European plaice	TAC-North-western Waters	IV; Union waters of IIa; that part of IIIa not covered by the Skagerrak and Kattegat
97	PLE/3BCD-C	European plaice	TAC-Baltic Sea Area	Union waters of Subdivisions 22-32
98	PLE/56-14	European plaice	TAC-North-western Waters	VI; Union and international waters of Vb; international waters of XII and XIV
99	PLE/7BC.	European plaice	TAC-North-western Waters	VIIb and VIIc
100	PLE/7DE.	European plaice	TAC-North-western Waters	VIId and VIIe
101	PLE/7FG.	European plaice	TAC-North-western Waters	VIIf and VIIg
102	PLE/7HJK.	European plaice	TAC-North-western Waters	VIIh, VIIj and VIIk
103	PLE/8/3411	European plaice	TAC-North-western Waters	VIII, IX and X; Union waters of CECAF 34.1.1
104	POK/2A34.	Saithe(=Pollock)	TAC-North-western Waters	IIIa and IV; Union waters of IIa, IIIb, IIIc and Subdivisions 22-32
105	POK/56-14	Saithe(=Pollock)	TAC-North-western Waters	VI; Union and international waters of Vb; international waters of XII and XIV
106	POK/7/3411	Saithe(=Pollock)	TAC-North-western Waters	VII, VIII, IX and X; Union waters of CECAF 34.1.1
107	POL/07.	Pollack	TAC-North-western Waters	VII
108	POL/08C.	Pollack	TAC-North-western Waters	VIIIc
109	POL/56-14	Pollack	TAC-North-western Waters	VI; Union and international waters of Vb; international waters of XII and XIV
110	POL/8ABDE.	Pollack	TAC-North-western Waters	VIIIa, VIIIb, VIIId and VIIIe
111	POL/9/3411	Pollack	TAC-North-western Waters	IX and X; Union waters of CECAF 34.1.1
112	PRA/03A.	Northern prawn	TAC-North-western Waters	IIIa
113	PRA/2AC4-C	Northern prawn	TAC-North-western Waters	Union waters of IIa and IV
114	RTX/03-	RNG and RHG species	TAC-Deep-sea Species	Union and international waters of III
115	RTX/124-	RNG and RHG species	TAC-Deep-sea Species	Union and international waters of I, II and IV

116	RTX/5B67-	RNG and RHG species	TAC-Deep-sea Species	Union and international waters of Vb, VI and VII
117	RTX/8X14-	RNG and RHG species	TAC-Deep-sea Species	Union and international waters of VIII, IX, X, XII and XIV
118	SAN/2A3A4.	Sandeels(=Sandlances) nei	TAC-North-western Waters	Union waters of IIa, IIIa and IV (Excluding waters within six nautical miles of UK baselines at Shetland, Fair Isle and Foula.)
119	SBR/09-	Blackspot(=red) seabream	TAC-Deep-sea Species	Union and international waters of IX
120	SBR/678-	Blackspot(=red) seabream	TAC-Deep-sea Species	Union and international waters of VI, VII and VIII
121	SOL/07A.	Common sole	TAC-North-western Waters	VIIa
122	SOL/07D.	Common sole	TAC-North-western Waters	VIId
123	SOL/07E.	Common sole	TAC-North-western Waters	VIIe
124	SOL/24-C.	Common sole	TAC-North-western Waters	Union waters of IIa and IV
125	SOL/3A/BCD	Common sole	TAC-North-western Waters	IIIa; Union waters of Subdivisions 22-32
126	SOL/56-14	Common sole	TAC-North-western Waters	VI; Union and international waters of Vb; international waters of XII and XIV
127	SOL/7BC.	Common sole	TAC-North-western Waters	VIIb and VIIc
128	SOL/7FG.	Common sole	TAC-North-western Waters	VIIf and VIIg
129	SOL/7HJK.	Common sole	TAC-North-western Waters	VIIh, VIIj and VIIk
130	SOL/8AB.	Common sole	TAC-North-western Waters	VIIIa and VIIIb
131	SOO/8CDE34	Solea spp	TAC-North-western Waters	VIIIc, VIIId, VIIIe, IX and X; Union waters of CECAF 34.1.1
132	SPR/03A.	European sprat	TAC-North-western Waters	IIIa
133	SPR/2AC4-C	European sprat	TAC-North-western Waters	Union waters of IIa and IV
134	SPR/3BCD-C	European sprat	TAC-Baltic Sea Area	Union waters of Subdivisions 22-32
135	SPR/7DE.	European sprat	TAC-North-western Waters	VIId and VIIe
136	SRX/03A-C.	Rays, stingrays, mantas nei	TAC-North-western Waters	Union waters of IIIa

137	SRX/07D.	Rays, stingrays, mantas nei	TAC-North-western Waters	VIId
138	SRX/2AC4-C	Rays, stingrays, mantas nei	TAC-North-western Waters	Union waters of IIa and IV
139	SRX/67AKXD	Rays, stingrays, mantas nei	TAC-North-western Waters	Union waters of VIa, VIb, VIIa-c and VIIe-k
140	SRX/89-C.	Rays, stingrays, mantas nei	TAC-North-western Waters	Union waters of VIII and IX
141	T/B/2AC4-C	Turbot/Brill	TAC-North-western Waters	Union waters of IIa and IV
142	USK/04-C.	Tusk(=Cusk)	TAC-North-western Waters	Union waters of IV
143	USK/3A/BCD	Tusk(=Cusk)	TAC-North-western Waters	IIIa; Union waters of Subdivisions 22-32
144	USK/567EI.	Tusk(=Cusk)	TAC-North-western Waters	Union and international waters of V, VI and VII
145	WHB/1X14	Blue whiting(=Poutassou)	TAC-North-western Waters	Union and international waters of I, II, III, IV, V, VI, VII, VIIIa, VIIIb, VIIId, VIIIe, XII and XIV
146	WHB/24A567	Blue whiting(=Poutassou)	TAC-North-western Waters	Union waters of II, IVa, V, VI north of 56Âř 30’ N and VII west of 12Âř W
147	WHB/24-N.	Blue whiting(=Poutassou)	TAC-North-western Waters	Norwegian waters of II and IV
148	WHB/2A4AXF	Blue whiting(=Poutassou)	TAC-NEAFC Convention Area	Faroese waters
149	WHB/8C3411	Blue whiting(=Poutassou)	TAC-North-western Waters	VIIIc, IX and X; Union waters of CECAF 34.1.1
150	WHG/03A.	Whiting	TAC-North-western Waters	IIIa
151	WHG/07A.	Whiting	TAC-North-western Waters	VIIa
152	WHG/08.	Whiting	TAC-North-western Waters	VIII
153	WHG/2AC4.	Whiting	TAC-North-western Waters	IV; Union waters of IIa
154	WHG/56-14	Whiting	TAC-North-western Waters	VI; Union and international waters of Vb; international waters of XII and XIV
155	WHG/7X7A-C	Whiting	TAC-North-western Waters	VIIb, VIIc, VIId, VIIe, VIIf, VIIg, VIIh, VIIj and VIIk
156	WHG/9/3411	Whiting	TAC-North-western Waters	IX and X; Union waters of CECAF 34.1.1

Table 1: The sampling frame.

6. Conclusions

This document has described the generation of the CFP indicators sampling frame for FAO area 27 (Northeast Atlantic). The sampling frame will be used in other analysis for the CFP indicators.

References

Gibin, M., ‘Integrating fishing management zones, FAO and ICES statistical areas by data fusion’, Tech. Rep. JRC105881, Joint Research Centre, Via Enrico Fermi 2749, Ispra, VA, Italy, 2017.

List of abbreviations and definitions

CFP Common Fisheries Policy

DGMARE Directorate-General for Maritime Affairs and Fisheries

FAO Food and Agriculture Organisation of the United Nations

FMZ Fisheries Management Zones

ICES International Council for the Exploration of the Sea

TAC Total Allowable Catch

List of tables

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: http://europea.eu/contact

On the phone or by email

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),

- at the following standard number: +32 22999696, or

- by electronic mail via: http://europa.eu/contact

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: http://europa.eu

EU publications
You can download or order free and priced EU publications from EU Bookshop at: http://bookshop.europa.eu. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see http://europa.eu/contact).

KJ-NA-28543-EN-N

JRC Mission

As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.

EU Science Hub
ec.europa.eu/jrc

@EU_ScienceHub

EU Science Hub - Joint Research Centre

Joint Research Centre

EU Science Hub

Publications Office

doi:10.2760/689063

ISBN 978-92-79-67448-8